

# Western R T A C

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## ***Montana Regional Trauma Advisory Committee***

**TITLE: C-Spine Clearance**

**PURPOSE:** To determine the stability of the cervical spine for the acute care of the trauma patient.

### **PROCEDURE:**

1. Trauma patients who are alert, awake, have no mental status changes, no neck pain, no distracting pain, and no neurologic deficits may be considered to have a stable cervical spine and need no radiologic studies of their cervical spine.
2. All other trauma patients should have the following:
  - lateral view revealing the base of the occiput to the upper border of the first thoracic vertebra
  - anteroposterior view revealing the spinous processes of the second cervical through the first thoracic vertebra
  - open mouth odontoid view revealing the lateral masses of the first cervical vertebra and entire odontoid process.
  - AP odontoid x-rays are not needed if the patient is getting a CT of the cervical spine
  - CT of the cervical spine should be performed for patients who are getting a CT of the head and are at high risk for cervical spine injury. These include:
    1. *focal deficit* - patients with an acute myelopathy or radiculopathy
    2. *severe head injury* - intracranial blood, brain parenchymal contusion, skull fracture, or unconscious at ED evaluation
    3. *high energy impact* - high speed collision (> 35, mph impact speed), crash with death at scene, pedestrian struck by car, fall from greater than 10 feet. \* Note risk approximately double for patients > 50 years.
  - CT scans with sagittal reconstruction should be obtained for any questionable level of injury, or through the lower cervical spine if this area cannot be visualized on plain radiographs.
3. All life-threatening hemodynamic and pulmonary problems should be addressed before a prolonged c-spine evaluation is undertaken. Before removing cervical spine immobilization devices, all radiographs should be read by an experienced emergency medicine physician, neurosurgeon, orthopedic spine surgeon, radiologist, or other physician with expertise in interpreting these studies.
4. If the cervical spine radiographs are normal but the patient complains of significant neck pain, cervical spine radiographs with the patient actively positioning their neck in extreme flexion and extension positions should be obtained.
5. If the patient has a neurologic deficit that may be referable to a cervical spine injury, the patient should have an immediate surgical subspecialty consultation.
6. In a comatose patient with normal cervical spine films, the cervical collar will remain in place. Flexion and extension will be obtained. Cervical collar will be removed only when these films are cleared.
7. If the patient has abnormalities of the cervical spine discovered on any of the radiographic as recommended above, the surgical subspecialty responsible for spine trauma should be consulted.

References: EAST Practice Parameter Workgroup for Cervical Spine Clearance, *Practice Parameters for Identifying Cervical Spine Injuries Following Trauma*. Donald Marion, MD, Robert Domeier, MD, C. Michael Dunham, MD, Fred Luchette, MD, Regis Haid, MD, Scott Erwood, MD., 1999  
- Blackmore CC, Emerson SS, Mann FA, Koepsell TD. Cervical spine imaging in patients with trauma; determination of fracture risk to optimize use. Radiology 1999; 211: 759-765